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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,304	04/19/2006	Junji Sato	L9289.06146	9089

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Dickinson Wright PLLC
James E. Ledbetter, Esq.
International Square
1875 Eye Street, N.W., Suite 1200
Washington, DC 20006

EXAMINER	
MALEK, LEILA	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/576,304	SATO ET AL.	
	Examiner	Art Unit	
	LEILA MALEK	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-18,21 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-18,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's argument filed 04/22/2009 has been fully considered but it is not persuasive.

Applicant's Argument: Applicant argues that support for limitations cited in claim 16, provided in paragraphs 0053-0056, 0076, and 0081.

Examiner's Response: Examiner respectfully disagrees. Examiner asserts that Applicant fails to disclose how the compensator compensates the phase distortion obtained by multiplying the constant stored in the storage by the magnitude of the frequency change with respect to the first baseband phase signal, wherein the constant obtained by dividing the phase distortion by the magnitude of the phase change, in a way to enable one skilled on the art to use the same method, because this equation does not match with any of the equations cited by the Applicant in invention's disclosure. In other words by re-writing the equation (1) disclosed in page 17 of invention's disclosure using the statements cited in claim 16, one would get:

$\Delta\Theta$ (distortion) = ($\Delta\Theta$ (distortion)/(magnitude of phase change)) * (magnitude of frequency change)

Which is not a valid statement and there is no support for it in the specification. Therefore Applicant fails to disclose the above discussed claimed subject matter in a way to enable one skilled in the art to use the same method.

2. Applicant's argument with respect to claim 12 has been considered but is moot in view of the new ground of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As to claim 16, Applicant fails to disclose how the compensator compensates the phase distortion obtained by multiplying the constant stored in the storage by the magnitude of the frequency change with respect to the first baseband phase signal, wherein the constant obtained by dividing the phase distortion by the magnitude of the phase change, in a way to enable one skilled on the art to use the same method. This equation does not match with any of the equations cited by the Applicant in invention's disclosure. In other words by re-writing the equation (1) disclosed in page 17 of invention's disclosure, by using the statements cited in claim 16, one would get:

ΔΘ (distortion) = (ΔΘ (distortion)/(magnitude of phase change)) * (magnitude of frequency change)

Which is not a valid statement. Therefore Applicant fails to disclose the above discussed claimed subject matter in a way to enable one skilled in the art to use the same method.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 12-15, 17, 18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perrett et al. (hereafter, referred as Perrett) (US 6,018,275), in view of Johansson et al. (hereafter, referred as Johansen) (Linearization of Multi-carrier Power Amplifiers, Vehicular Technology Conference, 1993 IEEE 43rd; 18-20 May 1993, pages: 684-687.

As to claims 12, 21, and 22, Perrett shows a communication apparatus (see Fig. 4, i.e. a transmitter) comprising a modulation apparatus (see Fig. 4, block 30) comprising: a modulator (see block 39) that modulates a frequency converted signal (see the output of block 36) of a frequency of a reference signal by a first baseband phase signal (see the output of block 31) and generates a modulated signal (see the output of modulator 39); a phase comparator (see block 33) that finds a phase distortion between a phase of the modulated signal and a phase of the reference signal; a voltage control oscillator (see block 34) that generates an oscillation frequency as a modulated output signal, the oscillation frequency determined by a control signal (i.e. the output of filter 38) indicating the phase distortion found in the phase comparator; a frequency converter (see block 36) that converts a frequency of the modulated output signal generated in the voltage control oscillator and generates the frequency converted

signal. Perrett discloses all the subject matters claimed in claims 12, 21, and 22, except for a compensator that beforehand compensates a phase distortion between the first baseband signal and a second baseband signal that is generated by demodulating the modulated output signal with respect to the first baseband phase signal based on a magnitude of a phase change between adjacent data of the first baseband phase signal and a predetermined constant. Johansson discloses a transmitter comprising a modulator and a power amplifier (see Fig. 2). Johansson discloses a compensator (see subtractors in Fig. 3) that beforehand compensates a phase distortion between the first baseband signal and a second baseband signal that is generated by demodulating the modulated output signal with respect to the first baseband signal (see page 686, left column and page 684). At this point, Examiner would like to call the attention of the Applicant to the description of limitation: compensating a phase distortion between the first baseband signal and a second baseband signal "based on a magnitude of a phase change between adjacent data of the first baseband phase signal and a predetermined constant", in the specification paragraphs 0038, 0043, and in claim 14. It appears that for finding phase distortion between two signals, Applicant calculates the phase distortion value by subtracting the signals, and then dividing the obtained phase distortion value from subtraction, by the magnitude of the frequency change, and multiplying the result by the magnitude of the frequency change. A closer examination of this formula reveals that the phase distortion value is first divided by a number (i.e. the magnitude of frequency change) and then multiplied by the same number. Since these numbers actually cancel each other out, they do not have any effects on the final

result of the phase distortion. Johansson discloses that the phase distortion value can been calculated by subtraction of the first signal (see Fig. 3) and the second signal. Therefore, the apparatus disclosed by Johansson has the same functionality of the compensator cited by the Applicant in claims 12, 21, and 22. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Perrett as suggested by Johansson to compensate for drifts in power amplifier nonlinearities caused by temperature changes, DC power variations, load changes (see page 686).

As to claim 13, Perrett and Johansson disclose all the subject matters claimed in claim 12, except that the compensator transforms the magnitude of the phase change into a magnitude of a frequency change. However, since phase and frequency are related to each other, it would have been obvious to one of ordinary skill in the art at the time of invention to use the magnitude of the frequency change instead of the magnitude of the phase change in phase distortion calculations, to meet the requirements of the system.

As to claim 14, Perrett and Johansson do not disclose a storage that stores the constant obtained by dividing the phase distortion by the magnitude of the frequency change, however, it would have been clearly recognizable to one of ordinary skill in the art at the time of invention to use a storage to save any calculated value in the system for further processing that value. The limitations regarding obtaining the phase distortion by multiplying the magnitude of the frequency change by the constant has already been addressed by the Examiner in rejection of claim 12.

As to claim 15, Perrett and Johansson do not disclose a storage that stores phase distortion selection information, however, it would have been clearly recognizable to one of ordinary skill in the art at the time of invention to use a storage to save any calculated value in the system for further processing that value. The rest of the limitations cited in claim 15, have already been addressed by the Examiner in rejection of claim 12.

As to claim 17, Johansson discloses that the demodulator generates the second baseband signal and demodulates a received signal (see Fig. 3 and page 686).

As to claim 18, Johansson discloses that the modulator modulates a carrier signal using a first baseband signal (see page 686, left column, lines 1-6) compensated by the compensator 108 and generates the modulated signal.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEILA MALEK whose telephone number is (571)272-8731. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leila Malek
Examiner
Art Unit 2611

/L. M./
/Leila Malek/
Examiner, Art Unit 2611

/Mohammad H Ghayour/
Supervisory Patent Examiner, Art Unit 2611